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**Comments and Responses
to Draft Focused Feasibility Study**



Prepared by ERM, Exton, PA for
the U.S. Air Force, July 1, 1996

Commentors include:

Env. Protection Agency
U.S. Geological Survey
PA Dept. of Env. Protection
PennDOT, Bur. of Aviation
U.S. Corps of Engineers

AR300001

Response to
U.S. Environmental Protection Agency Comments
Nancy Rios-Jafolla, Toxicologist
Draft Focused Feasibility Study Report
Middletown Airfield NPL Site
Dated 19 July 1996

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In Volume I

Section 3- Page 14. PAHs may be toxic via the dermal route at the point of contact. Some inorganics (e.g., manganese) are dermally absorbed. Therefore, the statement made in the Report is not entirely accurate. However, the RBC used for screening is still protective because of the conservative exposure assumed.

Response: The report will be revised to reflect the text of USEPA's comment.

Section 3- Page 16. Screening level RBCs at a hazard index equal to 0.1 should have been used in the analysis shown on this page for the soil in Meade Heights. Note that this does not change the conclusion made in the Report.

Response: USEPA Region III guidance suggests the use of screening level RBCs based on a hazard index of 0.1 for the elimination of constituents from a baseline risk assessment. Since no constituents were eliminated in this BRA, screening level RBCs (using a 0.1 hazard index) were not used in the analysis. However, in order to provide additional perspective, screening levels based on a 0.1 hazard index will be included in the comparison presented on page 16.

Section 3- Table 3-6. ERM. Indicate units in the footnote.

Response: A footnote will be added to indicate units.

Section 3- Table 3-4. Smith's Data. You may want to recalculate the hazard quotients for each area for manganese and the total hazard index for each area. Note that some of the summations of the hazard indices were found to be incorrect. See Areas IA and WA. Recalculating the hazard quotients for manganese for each area will show that the total hazard index does not exceed one and would prevent any confusion.

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Response:

The hazard indices shown on Tables 3-3 and 3-4 represent the total hazard indices, shown to one significant figure (i.e., 1, 2, etc.). These hazard indices were calculated from the RBCs presented on the October 1995 RBC table. To be consistent with that RBC table, and to avoid having to rescreen all of the data, no changes will be made to Tables 3-3 and 3-4.

The existing text describes recalculation of the hazard quotient for manganese, using the current reference dose. This text will be revised if necessary, to reflect the manganese reference dose cited by USEPA (see Comment 5).

Section 3-

Note that the RfD for manganese is 0.024 mg/kg/day, not 0.047 mg/kg/day.

Response:

The reference dose for manganese will be revised, pending confirmation of the source for this value.

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*Response to
U.S. Environmental Protection Agency Comments
Nick DiNardo, RPM
Draft Focused Feasibility Study Report
Middletown Airfield NPL Site
Dated 15 July 1996*

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General Comments:

For ease in understanding and to provide more information, include an explanation in the water quality tables, or in the "Acronyms and Abbreviations" section, a list of all qualifiers for the results from chemical analyses. For example, "J" is a qualified value.

Response: A list of all qualifers will be added to the beginning of Appendix E - Analytical Data.

For ease in understanding and to provide more information, include an explanation or summary of the naming conventions used to define all sample names. For example, "IAP SB2" is an Industrial Area Pipeline Soil Boring sample.

Response: The naming conventions are explained in Appendix D. A phrase has been added to the first paragraph in Section 2.5 referring the reader to Appendix D for this information.

For discussions pertaining to Post Run and the Meade Heights area, be consistent and concise in describing these areas. The usage varies from Meade Heights tributary, Meade Heights stream, and Post Run, which is confusing.

Response: Need to discuss with EPA.

Because of the assumptions made in developing the ground-water flow model and the limitations inherent in conceptualizing and simulating the natural system, the results of modeling may not be unique and any predictions based on results from the model should be qualified.

Response: -USACE acknowledges EPA's comment, no change needed.

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Specific Comments:

In Volume 1, Section 2:

Section 2.3.2- Geologic Setting, p. 5 of 19, paragraph 2: The glacial stage should be spelled "Illinoian" not "Illinoisan."

Response: The spelling will be corrected.

Section 2.3.3- Summary of Site Hydrogeology, p. 5 of 19, paragraph 2: The spelling pertaining to a conglomerate is "conglomeratic" not "conglomeritic."

Response: The spelling will be corrected.

Section 2.3.5- Summary of Site Hydrogeology, p. 9 of 19, paragraph 1: To include all impervious areas such as roads, runway, taxiways, and buildings, reword the phrase "...recharge is reduced in these paved areas..." to "... recharge is reduced in these impervious areas."

Response: The suggested edit will be made.

In Volume 1, Section 3:

Section 3.2.1.2- Leaching, p. 18 of 37, paragraph 1: The last sentence should end with the word "met" not "meant."

Response: The suggested edit will be made.

Section 3.2.1.2- Leaching, p. 18 of 37, bullet 2: The last sentence is incomplete.

Response: A period will be added to the end of the text; the sentence is complete as it stands.

In Volume 3:

Appendix C- Map Plates, Plate 1: The top of bedrock data for GF-303 is listed as 277.73 feet. Should this really be 377.73 feet, which is more representative of the surrounding water levels and the contoured data?

Response: The top of bedrock elevation shown for well GF-303 is in error. The land surface elevation was incorrectly recorded for

well GF 303. The map will be revised to indicated the top of bedrock elevation at well GF 303 is 360.69 above mean sea level.

Appendix C- Map Plates, Plates 3-6: Include a symbol or description to represent the screened interval of the wells.

Response: The symbol used to denote the screened interval will be added to the legend.

Appendix C- Map Plates, Plates 1 and 3-6: The discrepancies in bedrock elevations shown on the cross sections given on Plates 3-6 and the elevations given on Plate 1. Also note that several wells that are not shown on Plate 1 are included within the cross section.

Response:

Appendix C Map Plates, Plate 9: The TCE level for well ERM-4S is given as 20 ug/L and is incorrectly incorporated within the 100 ug/L contour.

Response: The contour will be relocated so as not to incorporate well ERM-4S.

Appendix E- Analytical Data, Main Building Area Shallow Monitoring Wells, and Background Soil Boring Results: Note that the units of measure are not given for the analyses in these tables.

Response: These tables will be reprinted with the units of measure.

In Volume 4:

Appendix H- Well Development Forms: A notation should be provided to explain the possible reason(s) when the ground water temperatures are anomalously high (up to 30 degrees C), as noted on the form for well ERM 11S. Similarly, an explanation for the possible reason(s) for anomalously high pH values (e.g. ERM 7D [Sent] had pH values of 9.5 to 10).

Response:

Appendix I- Monitoring Well Sampling Data Forms: The total volume of water purged is not always equal to or greater than the total

that was calculated to evacuate three borehole volumes of water (i.e. wells ERM-7I, 8D, 9S, 12I, 31I, and GF-312).

Response:

Appendix I- Monitoring Well Sampling Data Forms: As noted in the comments for Appendix H, there should be an explanation or notation for anomalously high or low temperatures and pH values. Also, the temperature and conductivity values for GF 207 are reversed. The explanation or notation should indicate that the chemical quality of water samples from these wells may not be representative of the screened interval (i.e. from grout contamination).

Response:

Appendix I- Monitoring Well Sampling Data Forms, and Appendix K Capture Zone Tests and Analysis, Table K-2: The information available at the USGS indicates that the well casing diameter and total well depth for the following HIA production wells are inconsistent: The well casing diameter for HIA 5 is 8 inches not 10 inches and for HIA 6 is 12 inches not 10 inches. The total well depth for HIA 4 is 459 feet not 140 feet and for HIA 13 is 800 feet not 602 feet.

Response:

Appendix J- Slug Test Data Analysis: Slug tests at wells ERM 1I and ERM 34I resulted in water-level oscillations rather than a monotonic rise or decline to the pre-test static level. Such oscillations occur when the inertia of the water column in the well is large relative to the frictional resistance of the aquifer. The analytical method used to analyze these tests (Bower and Rice, 1976) is not appropriate because inertial forces are not included in the equations. The tests can be correctly analyzed using the methods of van der Kamp (1976) and Kipp (1985).

Response: We will consider these methods of analysis.

Appendix K- Capture Zone Tests and Analysis: Table K-2: The information available to the USGS indicates that the well casing diameter and total well depth for the following HIA production wells are inconsistent: The well casing diameter for HIA-5 is 8 inches, not 10 inches and for HIA-6 is 12 inches, not 10 inches.

The total well depth for HIA-4 is 459 feet, not 140 feet and for HIA-13 is 800 feet, not 602 feet.

Response: Table K-2 has been changed to show the correct well casing diameter for wells HIA-5 and HIA-6, and the correct total well depth for HIA-4 and HIA-13.

Appendix K- Capture Zone Tests and Analysis: Note that although anisotropy was not indicated in the aquifer testing (a slight anisotropy was noted during testing at HIA 2), there may still be anisotropy in the aquifer. Aquifer anisotropy may not be apparent because of the spacing of the piezometers relative to the pumped well, the partial penetration of the piezometers, and interception or not interception of pumped well water bearing zones within the screened interval of the piezometers.

Response: The note that there may be anisotropy in the aquifer although not detected during the aquifer testing will be added to Section K.4.1, p. 13 of 32, 2nd bullet.

Appendix K- Capture Zone Test and Analysis: The reported usage of HIA production well pumpage rates is inconsistent. In Table K-5, the 5-year average values are in fact between 5 $\frac{1}{2}$ and 6 year averages, because the averages are calculated on the basis of a partial 1990 year. Also, average-annual pumpage rates used as model input, and those listed in Table K-5 and Table K-6, are different.

Response: The annual average pumping rates presented in Table K-5 are the averages calculated from HIA annual reports. The average from the Eastern Area wells was 95.6 gpm. Since HIA-3 and HIA-4 are not operated on a regular basis and their annual average pumping rates are 3.6 gpm and 0.2 gpm, respectively, for the period from May 1990 through December 1995, it was considered acceptable to lump their pumping into HIA-1, HIA-2, and HIA-5 pumping rates. Therefore the average annual pumping rates used in Scenario 4, presented in Table K-6, were adjusted such that the total simulated pumpage from the Eastern Area wells (HIA-1 through HIA-5) equaled the actual total annual average pumping rates from these wells but with HIA-3 and HIA-4 set to zero. Similar conditions were observed in the Western Area. HIA-9 pumps only a small portion of the total from the Western Area wells. Therefore, the pumping from HIA-9 was set to zero and the

pumping rates of HIA-6, HIA-11 and HIA-12 were increased to compensate for the 12.9 gpm attributed to HIA-9.

Appendix K- Capture Zone Test and Analysis, Section K.3.2- Ambient Monitoring, p 8 of 32, last paragraph: The date for the precipitation event should be 28 July 1995

Response: The text will be changed to the correct date.

Appendix K- Capture Zone Test and Analysis, Section K.3.3.4 North Base Landfill Area, p. 12 of 32, sentence 2: The recovery test of well MID-04 is listed as having a pumping rate of 80 gallons per minute (gpm). The sentence should indicate that the well was pumped at a certain rate (80 gpm) prior to the start of the recovery test. Also, what was the duration of the pumping rate prior to the test?

Response: The suggested change will be made. A sentence regarding the duration of pumping prior to the test will be added as follows: "Well MID-04 had been in 24 hours/day operation (i.e. pumping) since the installation of a new pump motor during the summer of 1995."

Appendix K- Capture Zone Tests and Analysis, Section K.4.1 General Observation, p. 13 of 32, bullet 1: Change "...response to recovery of production well MID-04..." to "... response to recovery of production well HIA-13."

Response: The text will be corrected.

Appendix K- Capture Zone Tests and Analysis, Figure K 15, and Hydrographs for HIA 9 in Attachment K1: Note that the plot indicates that there is interference from other pumped wells, and as a result, the information derived from this test should be used with caution and qualification. For example, during the test for HIA 9, the hydrographs shown in Attachment K1 (both Hydrograph Pumping Test and Drawdown vs. Log Time Pumping Test sections) for the pumped HIA production wells (HIA 6, HIA 11, HIA 12, and HIA 13) seem to be strongly correlated with the monitored piezometers (ERM 10I, ERM 21I, ERM 21D, GF 312, and GF 212).

Response: The interference from other pumping wells observed in Figure K-15 is noted in Section K.4.2.4, p 18 of We also

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observed the interference from other pumping wells therefore the data for wells ERM-10I, GF-312, and GF-212 were not analyzed for hydraulic parameters. The individual hydrographs presented in Attachment K1 are not discussed in report text.

Appendix K- Capture Zone test and Analysis, Section K.4.2.2 results for HIA 2, p. 17 of 32, paragraph 1: Change the figure reference from Figure K 14 to Figure K 13. Also, the statement that "... evaluating the curves for ERM 25D and ERM 26D..." should be "... evaluating the curves for ERM 25I and ERM 26I."

Response: The suggested changes will be made.

Appendix K- Capture Zone Tests and Analysis, Section K.4.2.3 Results for HIA 13, p. 17 of 32, paragraph 2: Change the figure reference from figure K-15 to Figure K-14. Also, change similarly on page 18 of 32 in this same section.

Response: The suggested changes will be made.

Appendix K- Capture Zone Test and Analysis: Note that a figure representing the capture zone for the May 8, 1995 data, used for model calibration, should be included to indicate the effective capture of ground water for the calibrated 2 dimensional (2-D) model.

Response The reason that the capture zone for the calibrated model run was not presented in the discussion of the model calibration, Section K.5.4, was that the model was calibrated to simulate the water level conditions observed in the SSI. Figure K-16 presents the simulated water table from the calibrated model for comparison to the field observed water levels. The pumping conditions on 8 May 1995 do not represent typical long-term operation therefore a capture zone delineation would be meaningless.

Appendix K- Capture Zone Tests and Analysis, Section K.5.5 Sensitivity Analysis, p. 27 of 32, paragraph 2: The sentence statement that "... ground water flow direction, which is consistently from the north to northeast..." can be misleading or misinterpreted. rewording the sentence to read "... ground water flow direction, which is predominantly from the north and northeast..." should address this concern.

Response: The suggested changes will be made.

Appendix K- Capture Zone Tests and Analysis, Section K.5.5 Sensitivity Analysis, p. 27 of 32, paragraph 3: The statement "...ground water travels proportionally slower or faster, respectively..." should read "...ground water travels proportionally faster or slower, respectively."

Response: The sentence was correct as stated. The flow velocity is inversely proportional to porosity.

Appendix K- Capture Zone Tests and Analysis, Section K.5.6.1 Eastern Area: The extent of the capture zone to the north and northeast appears to measure approximately 3-4,000 feet not 2,000 feet.

Response: The suggested change will be made.

Appendix K- Capture Zone Tests and Analysis, Section K.5.6.3 Western Area, Figure K-22: The capture zone does appear to extend to the south, from HIA 13 and HIA 14, by approximately 1,000 feet.

Response: The text specifies that the capture zone does not extend south of the runway. Due to the presence of fill in the runway area and the potential existence of source areas, the extent of the capture zone south of the runway was of particular interest.

Appendix L- Ground Water Flow Modeling, Section L.5 Review and Evaluation of Existing Data, p. 5 of 25, paragraph 2: Include Plate 7 as being used to represent current ground water conditions.

Response: The suggested change will be made.

Appendix L- Ground Water Flow Modeling, Section L.5.2 - Water Balance, p. 6 of 25: The value for ET should be 24 inches, not 12 inches.

Response: The text will be modified to incorporate the suggested change.

Appendix L- Ground Water Flow Modeling, Section L.5.2 Water Balance: A general water budget is given for the Site. What is the

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simulated model budget and how does this relate to the actual budget?

Response: The simulated model budget is a volumetric budget. The model uses as input the infiltration rate determined from the general water budget for the Site. The model does not calculate runoff or evapotranspiration values, it simply balances the inflows and outflows from storage, constant head, wells, drains, recharge, and river leakage. The model's water budget serves as a check on the acceptability of the solution. The percent discrepancy of the calibrated model's volumetric budget was - 0.19 percent.

Appendix L- Ground Water Flow Modeling, Section L.7.2 Vertical Division of the Model Grid, p. 11 of 25: What was the rationale for assuming that all model layers have the same horizontal hydraulic conductivity (i.e., no reduced conductivity with depth)?

Response: For lack of a basis for defining the vertical variation of hydraulic conductivity, we assumed a constant value.

Appendix L- Ground Water Flow Modeling, Section L.7.3.1 Layer 1 Stream Boundaries, p. 14 of 25, bullet 2: Note that river cells can receive water from, and contribute water to, the aquifer.

Response: A sentence will be added to note that the river cells can receive water from the aquifer.

Appendix L- Ground Water Flow Modeling, Section L.7.3.2, p. 14 of 25: In the 2D modeling, an areal recharge rate of 12 inches was used as the calibrated recharge. Why is the 3 dimensional (3D) model recharge rate different (10 inches), and what implications does this difference have in the modeling results?

Response: The sensitivity of the 3D model to the value of areal recharge is discussed in Section L.9.1. As discussed on p. 20 of 25, the model is sensitive to changing areal recharge. The lower recharge rates result in lower simulated water levels. During the calibration of the 3D model, it was determined that a recharge rate of 10 inches provided a better match to the field observed water levels.

Appendix L- Ground Water Flow Modeling, Section L.7.3.4 Initial Conditions, p. 15 of 25, paragraph 2: Note that the average annual pumping rates for the HIA production wells used in the model scenarios is not a 5 year average, but is between 5 and 6 years because the averages are calculated based on a partial 1990 year. Also note that these average annual pumping rates used in the 3 D modeling scenarios are different than those used in the 2D modeling scenarios. Why are the pumping rates different for the 2 and 3D modeling scenarios, and what implications does these differences have in the modeling results?

Response: There are no implications in the modeling results. The difference in the pumping rates of the individual wells does not have any impact on the modeling results as the total pumpage within each area of the industrial site (Eastern, Central and Western) is equal. The average annual pumping rates used in the 3D numerical model (Scenario 1) are the same as the actual average annual pumping rates presented in Table K-5. As discussed in the previous comment regarding Table K-5 and K-6, the rates used in the 2D analytical model were adjusted such that the total pumping rate for production wells within an area were accurate without misrepresenting the capture zone of any individual well. There should be no significant difference in capture zones for each area of the Site.

Appendix L- Ground Water Flow Modeling, Section L.8.1 - Reference Water Levels and Well Pumping Rates, p. 16 of 25: It is generally not correct to adjust the elevations of streams during model calibration.

Response: Due to the size of the 3D numerical model some problems were encountered with convergence at some stream cells. In most cases this problem was found to be due to too flat or too steep a change in stream elevation from one model cell to the next. The elevation of the streams (taken from the USGS quadrangle maps) were plotted and model input was adjusted in order to minimize convergence problems. This adjustment to the model input was performed during the model calibration phase and was therefore included in the list of parameters.

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Response to Comments
Pennsylvania Department of Environmental Protection
Draft Focused Feasibility Study Report
Middletown Airfield NPL Site
Dated 15 July 1996

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In Volume 1

1. ES-Summary of Site Risks: In the second paragraph of page 4, the last sentence of the paragraph regarding the ecological receptors are "not expected to be impacted," should be more definite and supportive than is stated.

Response: This last sentence will be deleted and replaced with a paragraph summarizing the results and conclusions of the ecological risk assessment for surface water and sediment samples collected from the Susquehanna River.

2. ES-In the remedial action objectives on page 5, the no action objective for the soils should include an additional explanation with regard to the direct contact for human exposure and the contaminated soil to groundwater pathway as stated for the objectives in the SSI, section 2.5. Section 3.4.1, third objective, and section 5.2, page 5, first objective also require additional explanations concerning this issue.

Response: Additional explanation of the results of the direct contact analysis will be provided in the Executive Summary and Section 5.2.

Additional explanation of the leaching evaluation will be provided in the Executive Summary, in Section 3.4.1 (third bullet), and in Section 5.2.

In Volume 1, Section 2:

3. Section 2.5-Page 18 - Of the none objectives listed in this section for the SSI and to be further evaluated in the FFS, six are not adequately addressed:
 - Objective # 1 - This FFS does not address or evaluate the SSI data for the soil to groundwater pathway for the areas indicated.

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•Response: The potential impact of contaminated soil on ground water was assessed for the Industrial Area and for the Runway Area. The impact of contaminated soil on ground water was not addressed for the North Base Landfill, since no additional soil data were collected in this area as part of the SSI. Objective 1 will be revised to delete reference to the North Base Landfill.

- Objective # 2 - The study does not evaluate surface water contaminants for the comparison to PADEP AWQC for ecological receptors (except for DEHP in section 4.3). The surface water contaminants were evaluated with the EPA BTAG screening levels only.

Response: Objective 2 - PADEP is correct that surface water data were compared only to BTAG levels, and not to PADEP AWQC. The approach is consistent with agency meetings held prior to the preparation of the BRA; it also follows the approach presented in the FFS outline distributed to all parties several months ago.

- Objective #5, 7, and 8 were not addressed by this study. These three objectives could be combined into one objective for easier explanation.

Response: Need to discuss with USACE/EPA

- Objective #6 - The soil vapor extraction evaluation for contaminated soils results from the SSI are not included in this report. An explanation of the SVE should be included to satisfy the objectives listed.

Response: SVE was evaluated and implementation of a pilot study was not recommended because the concentrations of volatile organic compounds in soils were low and the soils have a high content of fines and moisture which would limit air flow through the soils.

In Volume 1, Sections 3

4. - Section 3.2.1-pages 11 and 12 - The approval for excavation of soils is from PADEP only.

Response: The reference to PennDOT will be deleted.

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5. What reference was used to obtain non-carcinogenic screening levels for carcinogenic compounds: Most compounds on the RBC tables have one or the other but not both.

Response:

PADEP is correct that the hard copies (i.e., paper copies) of the RBC tables present only the lowest calculated screening levels for each constituent, medium, and scenario. For constituents which have both carcinogenic and noncarcinogenic endpoints, these levels are typically based on carcinogenic effects. However, embedded in the electronic version of the RBC table (provided by USEPA Region III) are two sets of calculated levels: one based on carcinogenic effects (for constituents which have carcinogenic slope factors), and one based on noncarcinogenic effects (for constituents which have reference doses). Both sets of values were used in the BRA to ensure that both carcinogenic and noncarcinogenic effects were adequately assessed. A footnote will be added to explain the source of these numbers. [CHECK WITH ANN - did we use electronic version or did we calculate by hand?]

6. Section 3.2.1.2-First bullet - At what depth was the TCE found in the soil column? This section states that the TCE was found at only one depth interval suggesting that it was not migrating. However if it was found at the lowest depth of each sampling point where it was found, this may not be a valid observation. Also, what reference was used for the screening level of 0.2 ug/kg?

Response:

The text states that TCE was "generally found only at a single depth interval." A table will be prepared which illustrates this condition. Note that in a few samples, TCE was found at more than one depth; however, this was such an isolated condition that it did not suggest a significant source of ground water contamination.

The reference for the leaching screening levels used in the BRA is given in the preceding paragraph; this reference will be added to the first bullet.

Note that the units are incorrect; the correct leaching screening level for TCE is 0.20 mg/kg.

7. Section 3.2.1.2-page 18 - It states that the vinyl chloride detections were suspect since field duplicate precision criteria were not met.

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However it was my understanding from earlier meetings on this topic that it was not the presence of vinyl chloride that was suspect, but the concentration present. If this is the case, the statement should be clarified to reflect this fact.

Response: The text states that "the vinyl chloride results were suspect, since field ..." To avoid ambiguity, this sentence will be revised to read "reported concentrations of vinyl chloride were suspect since field duplicate precision criteria were not met."

In Volume 1, Section 4

8. Section 4.1.1.2-third bullet - See previous comment regarding vinyl chloride. Also the report should discuss whether or not the VOCs detected exceeded the protection of groundwater standards.

Response: "Vinyl chloride results" will be changed to "vinyl chloride concentrations."

Additional text will be added regarding the isolated exceedences of leaching screening levels.

In Volume 1, Section 5

9. Section 5.2-Page 3, first paragraph - This paragraph should be more specific regarding the subsections in CERCLA concerning no action alternatives when adequate protection of human health and the environment are not ensured.

Response: Need to discuss with USACE/EPA

10. Section 5.2-Page 4, third paragraph - This paragraph should include language that evaluates the soil to groundwater pathway.

Response: Additional text will be added to describe the evaluation of the leaching pathway.

General Comments:

The Department also has some general comments on the FFS. The area where the groundwater usage is to be restricted by institutional controls needs to be better

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defined. As it is currently stated in the ROD, the restriction is between the North Base Landfill and the HIA production wells. Under this definition, areas where the groundwater contamination exists are not included (the Runway area and under the PA Air National Guard facility). Also how are these restrictions to be implemented? Will there be deed restrictions or local ordinances requiring the hook up to public water?

Response: **Need to discuss with USACE/EPA**

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Response to Comments
Pennsylvania Department of Transportation, Bureau of Aviation
Draft Focused Feasibility Study Report
Middletown Airfield NPL Site
Dated 15 July 1996

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Specific Comments:

In Volume 1, Section ES

Section ES- Site Description: Page 1 - It should be noted that additional owners of Air Force building also include the Pennsylvania State University (Penn State Harrisburg) and First Industrial Realty Trust (owners of the former Freuhauf Site).

Response: The text will be modified to note the additional owners.

Section ES- Scope and Role of Operable Unit: Page 2 - Acronym ROD is being used for the first time and should be spelled out.

Response: The acronym will be spelled out the first time it is used.

Section ES- Summary of Site Risks: Page 4 - Sixth paragraph, second item indicates that "Institutional restrictions on groundwater use should be continued..." , while the seventh item states that "In the event that the HIA should cease pumping...". These items appear to directly contradict one another. Does the latter statement indicate that the door may be open for discontinuing institutional restrictions or that they may be removed with respect to groundwater treatment? Further clarity of this point is warranted in this section and through the text of this report.

Response: The two statements describe scenarios that are different from each other. The continued implementation of institutional controls involves limitations on new ground water usage in the future and is not involved with the operation of the production wells. The second statement involves a situation where the need for use of the production wells is not there and pumping would cease. Under this situation, the institutional controls would not apply since no ground water use is under consideration.

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Section ES-

Summary of Site Risks: Page 5 - The last paragraph of this section indicates that the USACE is currently seeking a contractor to provide cleanup services of Vault J-5. It should be noted that these activities are complete and based on normal turnaround. Samples collected for laboratory analyses should be available for incorporation into the Focused Feasibility Study (FFS) document. Based on the construction and design of J-5, the correct descriptor is that of a storm water inlet and not a vault. Lastly, the storm water permit mentioned in this paragraph should provide the following additional information. Two permits will be established. The first will include a consolidation of three existing permits that include sewage, brine discharge, and discharge associated with Well 14 (HVAC). the second part of the permit will encompass two aspects including aircraft deicing and operating activities of airport tenants.

Response:

The text has been changed to reflect that the sediment has been removed from the storm water inlet. Since the Final FFS Report is to be issued on or about 31 July 1996, it is unlikely this data will be incorporated. The text will also be revised to include information pertaining to the two parts of the storm water permit.

Section ES-

Description of the "No Action" Preferred Alternative: Page 5 - The sixth paragraph of this section states that the public is encouraged to become involved in the selection of a remedy and that "... the USEPA solicits input from the community on the cleanup methods proposed for each Superfund response action proposed...". From a community involvement standpoint, we are concerned that this entire section, in particular paragraphs one and two, may be confusing to those members of the general public who wish to participate. (These same two paragraphs also appear in Section 5).

It would seem that the first two paragraphs are meant to educate the reader on the remedy options under CERCLA. As they are written, however, these paragraphs seem to stand apart from the key point of the sections: justifying the "No Action" remedy. These paragraphs, both in the Executive Summary and Section 5, should be reworded and better synthesized into the "No Action" argument. In doing so, keep in mind that others, including the general public, must be convinced that "No Action" is not only the preferred choice but the environmentally protective choice.

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Response: The text will be reworded in the first two paragraphs to more clearly present the information.

In Volume 1, Section 2

Section 2.2- Site History: Page 3 - The last paragraph in which the Middletown Airfield Site is defined as being solely HIA, this section should be expanded to again include Penn State Harrisburg and First Industrial Realty Trust.

Response: The text will be modified to note the additional owners.

Section 2.3.5- Summary of Site Hydrogeology: Page 10 - The seventh paragraph indicates that HIA treats its production well water to remove VOCs. This statement should be expanded to include softening and chlorination.

Response: The text will be expanded as suggested.

Section 2.5- Supplemental Studies Investigation Objectives: Pages 18 & 19 - The fifth and eighth bulleted items under paragraph one reference the development of ground water restoration timetable while the sixth bulleted item describes the evaluation of a soil vapor extraction (SVE) as a potential soil cleanup method to enhance groundwater cleanup. These items were described as being "specific objectives" of the Supplemental Studies Investigation (SSI). The measures taken to study these particular objectives should be included within the text of the document or, if not completed, a discussion as to why these items were dismissed from consideration should be included.

Response: SVE was evaluated and implementation of a pilot study was not recommended because the concentrations of volatile organic compounds in soils were low and the soils have a high content of fines and moisture which would limit air flow through the soils. Because a source area in site soils was not located, contaminant transport modeling was not performed which would have provided a time table analysis for restoration.

In Volume 1, Section 3

Section 3.1.1.3- Storm Sewer Sediments: Page 5 - Personal Communication with Fran Stauss, June 1996. The correct spelling is Strouse.

AR300021

Response: The spelling error will be corrected.

Section 3.2.1.1- Direct Contact: Page 14 - Second bulleted item, first sentence, "regardless of" modified to "regardless if"

Response: The text will be revised as follows:

"The maximum detected concentration of each constituent in each area was used in the calculation of potential risk, regardless of ~~other~~ whether the constituents were found in similar locations."

General Comments:

In closing, our last comment is more of a general request to provide specifics as to how measures stipulated in previous Record of Decision have been satisfied or, if dismissed from consideration, include justification for dismissal. As an example, consider the SVE study comment. Finally, it would appear that a tremendous effort was put forth in completion of the SSI and the selection of a "No Action" preferred alternative. Based on the extensive efforts, it appears that the document is quite silent on the topic of future development and soil disturbance. Have development concerns been adequately addressed? Will restrictions continue to be enforced? What are they (if any)?

Response: NEED TO DISCUSS WITH USACE/EPA

AR300022

Bauer

Memorandum For CEMRO-ED-EE (Dan Gillespie)

8 July 96

Subject: Comments on Draft Report Focused Feasibility Study Volume I - Report dated 1 July 1996 prepared by ERM Program Management Company.

Comments:

1. Sect ES, pg. 1/7 Current HIA operations should be described to the same extent that Air Force operations are included. HIA and tenants continue to carry out airport support maintenance and operations, paint stripping and repainting, parts cleaning, and stores and uses POL.
2. Sect 2.0 pg. 2/19 paragraph 2.2: Please expand site history to include current operations of HIA and its tenants as well as Fruehauf. See comment 1.
3. Sect 2.0 pg. 8/19 1st full paragraph: How was the "leaky" character of the aquifer addressed in the SSL.
4. Sect 2.0 pg. 9/19 3rd full paragraph: "has been thought to be a major groundwater discharge point" seems to indicate that the Susquehanna is not a major discharge point. Clarify whether, it is still true or there is contrary evidence after SSL.
5. Sect 2.0 pg. 18/19 2.5 5th bullet: Please note which tasks of this effort were deleted by EPA and the reasons they were deleted.
6. Sect 2.0 pg. 19/19 2nd full paragraph: Building 142 is the current Chloe facility and the pipeline was the Chloe pipeline not from the Air Force. this needs clarification and points out need for additional history as indicated in Comments 1 and 2 above.
7. Sect 2.0 pg. 19/19 3rd full paragraph: The Waste Sump House is Building 267 rather than "257" as I recall, please verify.
8. Sect 3.0 pg. 2/37 3.1.1.1 1st full paragraph: The Waste Sump House is Building 267 rather than "262" as I recall, please verify. See comment 7 above.
9. Sect 3.0 pg. 4/37 2nd full paragraph: The Waste Sump House is Building 267 rather than "262" as I recall, please verify. See comment 7 and 8 above.
10. Sect 3.0 pg. 20/37 3rd full paragraph: Is there similar information of background concentration ranges of these constituents in groundwater as presented for the soils on page 16/37? If so please include.
11. Sect 3.0 pg. 22/37 2nd - paragraph: Has there been any fish tissue or biosampling by the

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State for anywhere on the Susquehanna River that could be used to show actual concentrations in tissue versus sediment concentrations? Please include if possible.

12. Sect 4.0 pg 3/18 1st and 2nd bullets: Are the leaching screening level of 0.20 ug/kg comparable to the TCE Act 2 screening level for groundwater protection at 2,000 ug/kg? Appears to be a great discrepancy if so, please verify.

13. Sect 4.0 pg 9/18 2nd bullet from bottom: Is there any indication of who used or what was the fill material?

14. Sect 4.0 pg 13/18 last - paragraph: Were the upstream and downstream concentrations similar? Please expand to explain how they compare.

15. Sect 4.0 pg 15/18 3rd - paragraph: Although a logical conclusion, if there is any data that can be cited to support the statement that surrounding areas may be contributing to observed? If so please include statement to that effect.

16. Sect 5.0 pg 1/7 last bullet: I do not recall any specific discussion of the fire training area soils, we need to add some discussion of results from RI and why it was not included in the SSI.

17. Sect 5.0 pg 4/7 3rd full paragraph: Please include information on the off-site background locations and concentration levels of TCE in the groundwater.

18. Sect 5.0 pg 6/7 1st full paragraph: In second line, change "determine of there" to "determine if there". Also this paragraph indicates that lead is the primary driver for the vault cleaning but I believe the TCE levels were as much the driver as lead. Please clarify if that assumption is correct.

Stan Bauer

MIDDLETOWN NPL SITE
FOCUSED FEASIBILITY STUDY REPORT
1 JULY 1996 (DRAFT)

DRAFT REVIEW COMMENTS (Gillespie)

Note: Format of comment designation will be Bullet (B) Section Number/Page Number/Figure (F), Paragraph (P), or Line (L) number. For example a comment on Section 2.1, Page Number 1 of 19, 2nd paragraph, third line would be designated: 2.1/1/P2/L3

1. A&A/1 of 5

CE is normally used for Civil Engineering rather than C.

2. A&A

Re-number pages 1 of 5 through 5 of 5 as small roman numerals v through ix.

3. A&A/2 of 5

Search text for "Langley Air Force Base" and delete LAFB from A&A list if it is not found.

4. A&A/4 of 5

Search text for "Tactical Air Command" and delete TAC from A&A list if it is not found.

5. ES/1/Introduction

The introduction needs to address the Administrative Order. The following replacement text is suggested:

Pursuant to the Administrative Order on Consent for Operable Unit 2 Work issued by the U.S. Environmental Protection Agency, Region III, and executed by the United States Air Force (USAF), effective September 8, 1993, this Focused Feasibility Study (FFS) report documents the findings of the Operable Unit 2 Work (also referred to as Supplemental Studies Investigation (SSI)) conducted at the Middletown Airfield NPL Site, Middletown, Pennsylvania. The U.S. Army Corps of Engineers (USACE), Omaha District acting as a service support agency for the USAF contracted with ERM Program Management Company (ERM) to conduct the SSI and prepare a FFS report based on the data collected during the SSI. This FFS summarizes current conditions at the site and includes a discussion of the work completed and results obtained from the SSI performed at the site. The report also presents

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the results of a baseline risk assessment (BRA) and evaluates the need for remedial action based on all the data collected during the SSI as well as data from a parallel study undertaken by the Pennsylvania Department of Transportation Bureau of Aviation.

6. ES/1/Site Description/P3

Use PADOT instead of Penn DOT to match the list of A&A.

7. ES/2/Scope and Role of Operable Unit

This section needs to include the ESD's redesignation of operable units:

1987 ROD (drinking water) is OU#1;

1990 ROD as modified by ESD is OU#2;

Remedy to be selected subsequent to this FFS report is OU#3.

8. ES/3/Scope and Role of Operable Unit

Add at the end of this section the 7 ROD/ESD objectives/requirements.

9. ES/5/Description of the "No Action" Preferred Alternative/P2/L5.

Insert the word "new" before the word "treatment".

10. ES/6/Description of . . . Alternative/P4

Verify PADEP & DOD participation in Proposed Plan presentation.

11. 1/1/P1

Remove the contract information from the end of the first paragraph. Put this information on the inside front cover.

12. 2.3.1/4/P1

Wouldn't the Odd Fellows property be prime farmland in the vicinity of the site and currently being farmed?

13. 2.3.6/11/F2-3

Natural habitat of Odd Fellows was not evaluated. Any potential problems with not evaluating this relatively large area surrounded by the site boundaries?

14. 2.4/16/P3/L4

Add Meade Heights to the area where GPR and MS were performed.

15. 2.4/18/P1

The ESD required:

1. Evaluation of the potential impact of contaminated soil on groundwater.
2. Hydrogeologic investigation of the deep and shallow groundwater to determine extent of contamination and a capture zone for development of a timetable for groundwater restoration.
3. Evaluate a potential active soil cleanup method to enhance groundwater cleanup.
4. Sampling along Susquehanna river.
5. Evaluate best configuration for production well pumping to maximize plume containment.
6. Evaluate water quality and organisms of Meade Heights stream; and
7. Installation of monitoring wells between North Base Landfill area and Middletown production well MID-04.

16. 2.5/19/P2/L2

Waste sump house is building #267, not 257.

17. 2.5/19/P2

Include Meade Heights soil sampling; collection of background soil samples.

What about NBL CPT survey attempt? Capture zone pumping tests? Storm sewer survey? Meade Heights aquatic sampling?

18. 3.1.1.1/2/P1/L7

Waste Sump House (Bldg. 267) is incorrectly identified as Bldg. 262.

19. 3.1.1.1/4/P2/L14

Same as above comment.

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20. 3.1.7./11

Use PADOT instead of Penn Dot to match A&A.

21. 3.2/11/P2

Should the soil and groundwater be associated with Meade Heights instead of the Susquehanna river.

22. 3.2.1/12/P1

Use PADOT.

PADOT would not be involved at Meade Heights. Also, don't believe PADEP prior approval is necessary. They have to comply with approved Site Safety Plan.

23. 3.2.1/12/P2/B3

See above comment.

24. 3.2/11/P2

The following text referred to does not appear to be limited to the Susquehanna River and Meade Heights as the text indicates that it should.

25. 3.2.1.1/14/P2/B2/S1

Check sentence structure.

26. 3.2.1.2/18/B1

Is "meant" the intended spelling?

27. 4.2.3/10/P1/B3

Check line spacing between bullets 2 & 3.

28. 5.1/1/P4

The OU#2 ROD as clarified by the ESD redefined OU designations. The text needs to be revised to eliminate the OU#1 through OU#5 references as used.

AR300028

29. 5.2/6/P1

Delete last sentence in paragraph. Let the Proposed Plan make that statement.

30. 5.2/16/P2

Correct spelling of "Additionally" & change "of there" to "if there". Also, what about the elevated TCE in the storm sewer?

31. 5.3/7/P1

Change DoD to DOD. As commented on in the summary PADEP & DOD participation in EPA's public meeting requires verification.

32. B.2/3/P1/S2

Capitalize the first word of the second sentence.

33. Vol. III, Table D-1, p. 3

First bullet in Implemented Program column. Correct spelling of "Performrd".

34. Vol. III, Table D-1, p. 6

Third bullet in Reason for Modification column. Correct spelling of "oper".

35. Vol. III, Figure D-4

Identify the un-numbered direct push ground water sample location. own just south of NBL-GPW13.

36. D.6.2/14/P2/L6

Should "NBL-GW14" actually be NBL-GPW14?

37. D.11.2/31/P4/S1

Contact of this sentence and the following paragraph (D.11.3) needs to be clarified. The discussion appears to be in reference to the capture zone monitoring wells. Other monitoring wells had been installed prior to this borehole geophysical logging being conducted. Since this section of the report is not just a description of the capture zone wells some clarification is needed.

38. D.11.5/33/P1

Provide figure showing location of abandoned wells.

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39. D.13.3/40/P1

This section says 14 production wells were sampled. Section D.13 says 15 production wells were sampled. Explain the discrepancy. Table D-14 indicates the correct number should be 14.

AR300030

Memorandum For CEMRO-ED-EE (Dan Gillespie): July 18, 1996

Project: Middletown Airfield NPL Site, Supplemental Studies Investigation

Subject: USACE-MRO comments by Jerry Trease (Project Chemist) on Draft Focused Feasibility Study Volume III (Appendices C-E) dated 1 July 1996 prepared by ERM.

Appendix D Comments

1. Section "Site Investigation Methods", pg 1/57, top set of bullets: Indicate by separate bullets or by including in parentheses behind an existing bullet the following areas indicated on Figure D-1: Terminal, PAANG, Lagoons.
2. Table D-1: Nice work! Table D-1 is a concise, yet complete, summary of Scope of Work and Modifications. The following minor edits are recommended:
 - a. Pg 1/7, 3rd column, 2nd bullet: replace "SV84" with "-SV87".

Note: this change will give a total count of 84 soil vapor samples and agrees with the soil vapor sample locations indicated on Figures D-3A and D-3B. As indicated on Table D-1 and on Figures D-3A and D-3B, apparently no soil vapor sample locations were assigned for -SV6, -SV7, and -SV21.
 - b. Pg 1/7, 3rd column, 3rd bullet: replace the phrase "Bldg. 142 pipeline" with "Bldg. 142 & Bldg 267 pipelines".
 - c. Pg 1/7, left column: the Area of Concern "Industrial Area - Buildings 142/267 Pipelines/Lagoons" given at the bottom of page 1/7 should be moved to the top of subsequent page of Table D-4 with the abbreviation (cont.) added at end.
 - d. Pg 2/7, 3rd column, 3rd bullet: replace "boring" with "borings"
 - e. Pg 3/7, 3rd column, 1st bullet: replace "Performrd" with "Performed"
 - f. Pg 3/7, 3rd column, last bullet: The number and depth of surface samples actually collected and analyzed needs to be verified against text description given in Section D.7.1.2 on pages 16/57 and 17/57. Revise either this bullet or the subject text to reflect actual samples collected.
 - g. Pg 4/7, 3rd column, 6rd bullet: replace "samples" with "sampled" and switch "SW" with "SED" to match the sequence of listing surface water ahead of sediment in 2nd column
 - h. Pg 5/7, 2nd column, 3rd bullet: replace "Located" with "Locate"

i. Pg 5/7, 3rd column, 3rd bullet: replace "samples" with "sampled" and switch "SW" with "SED" to match the sequence of listing surface water ahead of sediment in 2nd column

j. Pg 6/7, 4th column, 3rd bullet: replace "oper" with "over"

k. Pg 6/7, 3rd column, 4th bullet: verify the list of production wells actually sampled (for the May-June 1995 site-wide groundwater sampling event) and edit the list and text of this bullet, Table D-12 (pg 4 of 4), Table D-14, and Section D.13.3 pg 40/57 2nd paragraph (as applicable) for consistency.

Note: Based on the Well Sampling Data Form completed for HIA-9 on May 24, 1995, HIA-9 was sampled (the completed sampling form is included in Vol. IV of this FFS Report, Appendix I) ; however, the sample from this well was apparently not analyzed since HIA-9 is not among samples indexed under LIMS 3258 in the complete Data Package for the site-wide groundwater sampling event.

l. Pg 6/7, 2nd column, 5th bullet: replace "drillers" with "driller's"

m. Pg 7/7, Notes: replace "SD" with "SED"

3. Section "Site Investigation Methods", pg 2/57, 1st and 2nd full paragraphs: This reviewer recommends dividing the existing two paragraphs into three paragraphs as follows:

1st paragraph - construct a new paragraph consisting of the first sentence of the existing first paragraph followed by the last sentence of the existing second paragraph; change the word "laboratory" to "laboratories" in the sentence just moved; add a sentence indicating that those soil samples for VOCs analysis from areas which are not specifically identified in the paragraph below for analysis by ERM-FAST[®] were submitted for off-site laboratory VOCs analysis; and add a sentence giving the names and location of the two primary contract laboratories

second paragraph - delete the phrase "Unless otherwise indicated," from the first sentence; then add a statement regarding the turnaround time for the field screening analysis

third paragraph - in the first sentence change the word "sediment" to "soil", insert the word "shallow" preceding phrase "monitoring wells", and insert the phrase "to ERM-FAST[®]" after the word "submitted".

4. Section D.2 pg 5/57 last sentence: Suggest rewording the phrase "Building 29, 133, and 142" as follows: "former Building 29 and existing Buildings 133 and 142"
5. Section D.3 pg 6/57 2nd paragraph: To avoid any potential misunderstanding where the Building 142 pipeline discharges, this reviewer recommends placing a period after the word "lagoons" near the end of the last sentence. Then replace the remaining sentence

fragment with the following sentence: "The Building 142 pipeline discharges into the lagoons."

6. Section D.3.1 pg 6/57 last sentence and Figure D-2: The last sentence on pg 6/67 which reads "Water samples were collected from the culvert at 4 locations" appears to conflict with the 3 locations shown in Figure D-2. Clarify whether it was 3, or 4, locations that were collected within the convert between where the pipeline enters the Post Run culvert and Post Run exits the culvert at the PAANG. Also, describe the location/purpose of Sample Points #1 and #4 in the text. Finally, correct the apparent typo (DYE-SUDY #1) on Figure D-2 associated with the sample point identified as DYE-STUDY #1.
7. Section D.4 pg 8/57 1st paragraph: Identify the waste sump (e.g., Building 267 waste sump or waste sump at Waste Sump House) in the last sentence.
8. Section D.4 pg 8/57 2nd paragraph: For consistency with the direct push soil vapor sample locations given on Figures D-3A and D-3B (and Table D-1, pg 2/7), the fourth sentence should read: "Of the 84 soil vapor samples, 44 samples were collected along the Building 142 pipeline and 40 were collected along the Building 267 pipelines and in the area of Building 267."
9. Section D.4.2 pg 9/57 1st paragraph: Recommended edits: 1st line - replace 81 with 84; 3rd line - replace the phrase "(1 through 84)" with the phrase "(1 through 87 - where location numbers 6, 7, and 21 were not used)"; last line - replace "-SV84" with "-SV87)".
10. Figure D-3A and Table D-2. Soil Vapor locations IAP-SV35 and IAP-SV34 are not correlated correctly with direct push Soil locations IAP-GS11 and IAP-GS12. Please verify field notes and correct either Figure D-3A or Table D-2 as applicable.
11. Section D.5.2 pg 11/57 2nd paragraph: Clarify the parameters for off-site analysis given on the last line on pg 11/57 and the first line on pg 12/57 to indicate that the terms TCL and TICs apply to both VOCs and SVOCs analyses.
12. Section D.6 pg 13/57 2nd paragraph, 2nd sentence and Figure D-4: Clarify the text to explain why location NBL-GPW is not given on Figure D-4.
13. Section D.6 pg 13/57 2nd paragraph, next to last sentence: Insert the missing word(s) after the word "information" and delete "and D-4" from the phrase in parentheses at the end of the sentence. Also add text to explain the reason "direct push soil vapor or direct push soil samples could not be collected directly adjacent to the underground pipeline".

Note: Given the fact that the direct push groundwater locations indicated on Figure D-3A shows the direct push sample locations for all three media (vapor, soil, and groundwater) nearly co-located in the vicinity of the westernmost section of the Building 142 pipeline, the phrase enclosed in quotations in above comment (taken from the FFS text) appears contradictory.

14. Section D.6.1 pg 13/57 last sentence: Clarify whether "The tubing was replaced between sample collection" at each depth for each sample location.

15. Section D.6.2 pg 14/57 1st paragraph and Figure D-4: Edit the text and/or Figure D-4, as appropriate, to clarify what location on Figure D-4 corresponds to NBL-GPW14.

Note: Since the text indicates that NBL-GPW14 is one of the two locations where ground water samples could be collected, this reviewer assumes the location labeled NBL-GPW on Figure D-4 is location NBL-GPW14.

16. Section D.7 pg 15/57 2nd paragraph: Clarify the end of the first sentence by replacing the phrase "for both on-site field screening analyses and off-site laboratory analyses" with the new phrase "for on-site field screening analyses (Level II), on-site Level III TCL VOCs plus TICs analyses, and off-site laboratory analyses".
17. Section D.7 pg 15/57 2nd paragraph, 2nd bullet: Based on information provided in Table D-1 (pg 2/7) and Figure D-5, thirty (30) rather than 29 borings were drilled and sampled around the Industrial Area. Verify actual number drilled and sampled and edit the text of this bullet accordingly. If the actual number is 30 boring, then the text in this bullet describing the number of initial borings (15) versus additional borings (14) will need adjustment.
18. Section D.7 pg 15/57 2nd paragraph, 3rd & 4th bullets: Replace the word "scrapes" with "scrape locations" in the 3rd bullet; and delete the redundant word "itself" at the end of the 4th bullet.
19. Section D.7.2 pg 17/57 bottom paragraph, 2nd sentence: Replace the phrase "for off-site laboratory analysis" with the revised phrase "for 48 hour turnaround on-site analysis of TCL VOCs plus TICS and routine turnaround off-site laboratory analyses for other parameters".
20. Section D.8 pg 19/57 2nd paragraph: Clarify the third sentence by placing a period after the word "maps". Then reword the remainder of the sentence to create the following new sentence: "The storm sewer inlets were also located and inspected during the walkover."
21. Section 8.2 pg 20/57. Delete the last sentence "Sediment color . . . notebook" since it is a repeat of the last sentence in the previous paragraph.
22. Section D.9 pg 21/57 2nd paragraph: The Building 208 radiological instrument survey background location described in the second sentence is not indicated on Figure D-7 and is not listed on Table D-4. Please clarify.
23. Section D.9.1 pg 22/57 2nd paragraph, next to last sentence: Verify accuracy of the numbers in the phrase: "approximately 70 square inches per wall or 150 square inches per sample".
24. Table D-5 and Figure D-8. In the left column of Table D-5 (see Table D-6 for example), enter the terms "Downstream", "Adjacent", "Adjacent", and "Upstream" in parentheses under the respective station numbers. Also, to make it easier to follow the description for Station MH-1 on Table D-5, enter the label "Rosedale Ave" on Figure D-8.

25. Section D.10.3.3 pg 27/57 2nd paragraph, 1st line: It is this reviewer's understanding that the aquatic survey was only intended for the Meade Heights stream, not the Susquehanna river. As indicated by the scope of work (delivery order #6) paragraph 2.2.6.2 Aquatic Survey being numbered as a subparagraph under section 2.2.6 Meade Heights and being absent from section 2.2.7 Susquehanna River, the intent of the USACE's Scope of Services was that the Aquatic Survey to apply only to the Meade Heights stream. Perhaps a draft version of the scope may have mistakenly duplicated the aquatic survey paragraph under both section headings.
26. Section D.11 pg 28/57 3rd paragraph: Recommend dividing the 4th sentence by placing a period after "Table D-8", and then rewording the remainder of the sentence as follows: "Construction details for the existing production wells are presented on Table D-9." Also supply the missed period which should precede the word "The" on the next to the last line of the paragraph.
27. Table D-9. Clarify the well depth (602 feet BLS) and open borehole interval (72 feet BLS) for HIA-13 given in Table D-9. For comparison, see "Meas. T.D. of Well 00" given in Table D-11 (pg 6 of 6) and "Total Well Depth" (800 ft. bmp) given in Table D-12 (pg 4 of 4).

Related comment for Vol. IV: This comment also applies to Table K-2 in Appendix K (see Volume IV of this FFS Report).

28. Table D-8 and Figures D-9A & D-9B. Please correct or clarify well type information. Table D-8 shows ERM-11S, -12S, -21S and -22S as bedrock (BR) wells. These well are identified as overburden wells on respective figures: ERM-21S and -22S on Figure D-9A; ERM-11S and -12S on Figures D-9B. Also attempt to separate the symbols for ERM-23S, -23I, and -23D so the symbol for -23S shows that it is an overburden well (according to Table D-8). Finally, try to separate the well label for GF-211 and ERM-25D so they are superimposed on each other.

Related comment for Vol. IV: Since Table K-1 identifies the shallow capture zone wells ERM-21S, -22S, -25S and -26S as bedrock wells, please verify and edit (as applicable) the accuracy of the following statement in Section K.1.3 pg 3/32 Appendix K (Volume IV of this FFS Report): "The shallow wells were completed in the overburden with screened interval of 10 to 20 feet below ground surface (bls)."

29. Figure D-9A. Under the legend, "ERM-12S" should not be used as an example for "ERM Overburden Monitoring Well Location". ERM-12S is a North Base Landfill monitoring well and is not located on Figure D-9A. Table D-8 lists ERM-12S as a bedrock well (see earlier comment).
30. Figure D-9B. Under the legend, "ERM-11S" should not be used as an example for "ERM Overburden Monitoring Well Location". Table D-8 lists ERM-11S as a bedrock well (see earlier comment).

31. Section D.11.2 pg 31/57 3rd full paragraph. According to information given in Table D-8, the number intermediate and deep bedrock wells were installed during this investigation was thirty-seven, not forty.
32. Table D-11. Add the units of measure and measurement reference point for both columns titled "Potentiometric Surface Elevation" as well as the column titled "Mea. T.D. of Well" on Table D-11, all pages. Also, on page 6 of 6, define the abbreviation "Meas. T.D." that is used in the next to the last column heading.
33. Table D-12. Clarify the well depth for MID-04 (450 feet bmp) given in Table D-12, pg 4 of 4. For comparison, see "Well Depth (815 feet BLS) given in Table D-9 and "Meas. T.D. of Well" (815) as given in Table D-11, page 6 of 6.
34. Table D-13. Under the column heading "Wells", change the row that reads "HIA Introduction Wells" to read "HIA Production Wells. Under the column heading "Analytical Parameters", correct the spelling of the parameter "TCL Presticides" for the "Shallow Capture Zone Wells, insert a comma after the word "metals" in the parameters list for "Water Tanks (for drilling)", and complete the truncated parameter (TCL Pesticides according to the July 1994 Work Plan) at the end of the list for the "Industrial Area Pipeline - Shallow ERM Wells".
35. Section D.13.3 pg 41/57 top paragraph, next to last sentence: Revise the phrase "Figure D-9A" to read "Figures D-9A and D-9B".
36. Section D.13.3 pg 41/57 and Table D-14: Based on the analytical data presented in Appendix E of this FFS report, Production Well HIA-9 was apparently dropped from the site-wide groundwater sampling event. However, HIA-9 groundwater was sampled and analyzed 5 months earlier as part of the depth specific sampling activity. Please add a footnote to Table D-14 and edit Section D.13.3 to explain the rationale why no analytical data from the site-wide groundwater sampling event is available for HIA-9.

Note: Based on the Well Sampling Data Form completed for HIA-9 on May 24, 1995, HIA-9 was sampled (the completed sampling form is included in Vol. IV of this FFS Report, Appendix I) ; however, the sample from this well was apparently not analyzed since HIA-9 is not among samples indexed under LIMS 3258 in the complete Data Package for the site-wide groundwater sampling event.

37. Section D.13.4 pg 43/57, item 4 & 5: Recommended edits for readability - add the phrase "under static conditions" at the end of item 4, add the word "Then" at the start of item 5, and change the verb from "are" to "were" in the last sentence of item 5.
38. Section D.17.3 pg 50/57 1st paragraph, last sentence: Substitute the verb "had" for both "has" and "have".
39. Section D.17.4 pg 51/57 item 1: Explain the end use of the MicroTip PID screening.
40. Section D.19 pg 57/57 2nd paragraph, 1st sentence: Add punctuation, plurals, etc. to clarify the types of sample locations that were plotted on the base map based on field measurements from available landmarks.

Note: See next page for additional comments on Appendix D prepared by J. Trease after his initials comments were submitted on July 18, 1996.

Additional comments on Appendix D prepared by J. Trease after his initials comments were submitted on July 18, 1996.

41. Section D.11.1 pg 29/57 last paragraph: In the first sentence, replace the phrase "Industrial Area along the pipeline and at the lagoons" with the new phrase "Industrial Area Main Building Area (3); along the pipeline (4); and at the lagoons (1)". In the second sentence, insert the following phrase and parentheses "(located at the western end of the PAANG compound and at the southern end of the PAANG Apron, respectively)" after the phrase "ERM-34S and -35S".
42. Section D.11.1 pg 29/57 last paragraph/Appendix E: Of the ten Industrial Area overburden monitoring well borings (described in the 1st sentence) from which soil samples were collected for chemical analysis, the analytical data for soil samples collected from the 5 following locations could not be located in Appendix E. Please add the missing data to the Summary Reports in Appendix E.

Main Bldg. Area:
(Ref. Data Pkg. LIMS 2103)
IAB-ERM-4S
IAB-ERM-5S
IAB-ERM-27S

PAANG Area
(Ref. Data Pkg. for LIMS 3258)
IAB-ERM-34S
IAB-ERM-35S

43. Section D.11.1 pg 29/57 last paragraph/Appendix E: Please edit the text to explain that the prefix "IAL-" was inadvertently omitted from the soil samples collected from the overburden monitoring well boring for ERM-1S. Alternatively, edit the affected sample labels on the appropriate Summary Reports in Appendix E (in the section labeled: Building 267/142 Pipelines and Lagoons) and clearly explain in a footnote on the affected pages how the samples are labeled in the field/laboratory documentation and in the analytical data base. This labeling inconsistency apparently stems from how the sample was labeled on the Chain-of-Custody form.
44. Section D.11.1 pg 30/57 top paragraph: Since there is an inconsistency in the labeling of the soil samples collected from the monitoring well boring ERM-1S and since this monitoring well is located in the mid-Lagoon area, not in the pipeline area, this reviewer recommends replacing "ERM-1S" with "ERM-2S". Also replace the incorrect sample designation "IAP-ERM1S(0.5-2.0)" with "IAP-ERM2S(1.0-3.0)".

Note: ERM-2S is a pipeline monitoring well location, hence the "IAP-" prefix. In switching from ERM-1S to ERM-2S, notice that the sample depth is different for the first subsurface sample interval.

Appendix E Comments

45. Edit Appendix E as appropriate per discussion in J. Trease's comments 42 and 43 (above) on Appendix D.

Memorandum For CEMRO-ED-EE (Dan Gillespie): July 19, 1996

Project: Middletown Airfield NPL Site, Supplemental Studies Investigation

Subject: USACE-MRO comments by Jerry Trease (Project Chemist) on Draft Focused Feasibility Study, Volume I, dated 1 July 1996, prepared by ERM.

1. ACRONYMS AND ABBREVIATIONS pg 1/5: Replace "BTE" with "BTEX"; replace "DCE" with "DDD".
2. ES pg 1/7, last line of Introduction: Replace the word "was" with "as". Also search-and-replace the entire document for making the acronym/abbreviation for the Pennsylvania Department of Transportation consistent with in the text (PADOT, Penn Dot, Penn DOT, and PennDot are all current used in the document). Alternatively, add the other acceptable acronyms/abbreviations to PADOT in the list of ACRONYMS AND ABBREVIATIONS. Finally, this reviewer recommends using the full name of the acronym or abbreviation (e.g., Pennsylvania Department of Transportation), followed by the appropriate acronym (e.g., PADOT) enclosed in parentheses, the first time an acronym or abbreviation is used in the text of the document.
3. ES pg 2/7, 3rd paragraph, 2nd sentence: This reviewer recommends that the word "Subsequently" be replaced with the phrase "In the 1990 ROD" and that the words "have been" be replaced by the word "were".
4. ES pg 2/7, 4th paragraph: For consistency with the 1990 ROD language, this reviewer recommends the following revised paragraph to replace the paragraph which follows immediately after the five bullets: "The 1990 ROD defined the selected remedy for OUs 1, 2, 3 and 4. However, an interim remedy was proposed for OU-5 since the results of the investigation were inconclusive in determining the source(s) of contaminants and their potential impacts."
5. ES pg 3/7, 1st paragraph: Since the comma after "MID 04" in the first line is redundant and makes the wording awkward, this reviewer recommends the comma be deleted.
6. ES pg 3/7, 3rd paragraph, 4th sentence: This reviewer recommends the following clarifications for consistency with the ESD language: insert "1990" in front of the acronym "ROD" the first time it appears in the sentence; and replace the phrase "in the ROD issued after the SSI was complete" with the new phrase "in a later ROD or RODs".

Note: See pg 4, Section III, 1st bullet of the ESD for subject language.

7. ES pg 2/7 & 3/7. To complete the full explanation of the evolution of the term "operable unit" in the Section titled "Scope and Role of Operable Unit", this reviewer recommends that ERM confer with the USACE TM on whether the ESD language provided on pgs 4 & 5, Section III, 2nd bullet, is still applicable. In part, that bullet reads as follows:

"The use of the term "operable unit" in the 1990 ROD for this Site to describe geographical areas of the Site will be eliminated.the term

MIDDLETOWN AIRFIELD: COMMENTS BY JERRY TREASE ON JULY 1996 DRAFT FFS

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operable unit will be reserved for phases of the remedy.....remedy to be selected after studies identified in the 1990 ROD is operable unit 3."

8. ES pg 5/7 first bullet, 4th line: The words "there is" are redundant and may be deleted.
9. ES pg 6/7 2nd paragraph: Search the entire document and selectively replace the acronym "FS" with "FFS" when the subject text is referring to the project report for the Supplemental Studies Investigation (April 1994-Nov 1995).
10. Section 1.0 pg 1/4 1st paragraph: This FFS Report appears to be prepared "based on all available site investigation data including the SSI information". After conferring with the USACE TM, please revise the wording at the end of the first sentence (if appropriate) which now reads "based on the data collected during the SSI".
11. Section 1.0 pg 2/4 1st paragraph, 3rd sentence: This reviewer recommends the following clarifications for consistency with the ESD language: replace the phrase "in the ROD issued after the SSI" with the new phrase "in a later ROD or RODs".
12. Section 1.2.1 pg 3/4 1st sentence: According to Section 3.0, pg 1/37, the baseline risk assessment involves other data in addition to data collected during the SSI. Please clarify.
13. Section 1.2.5 pg 4/4: Since Appendix I also includes Well Sampling Data Forms for production wells and residential wells, delete the word "Monitoring" in the definition for Appendix I. Also, reverse the order of the words "Data Sampling" to match the title on the forms.
14. Figure 2-2. This reviewer recommends increasing the size of Figure 2-2 to 11" x 17", deleting the legend, symbol, and label for production well MID-04 from the Generalized Base Map, and replacing the label "Apron" shown just to the left of the northern most lagoon with "PAANG".
15. Section 2.5 pg 18 19 6th bullet: This reviewer recommends inserting the phrase "and prepare a recommendation regarding" after the word "evaluate", inserting a semicolon after the word "frame", and inserting the phrase "if warranted based on USACE's approval" after the word "study".
16. Section 2.5 pg 19/19: Add additional bullets to describe the objectives for the storm sewer sediment sampling and background soils sampling.
17. Section 2.5 pg 19/19 2nd full paragraph, 2nd sentence: In the phrase "pipeline which resulted in 81 sample locations", replace "pipeline" with "pipelines" and replace "81" with "84".
18. Section 2.5 pg 19/19 2nd full paragraph: This reviewer recommends adding additional text to describe the full scope of the soil investigation. At the appropriate location in the 2nd paragraph or in a new paragraph add text describe the following: Direct push soil sampling at two depths at 15 locations near the residential area and on either side of the stream at the Meade Heights Area, soil samples collected from 5 background soil boring locations, soil samples collected from the overburden at 10 select shallow monitoring well

borings in the Industrial Area (3 from Main Building Area, 4 from along the pipelines, 1 from mid-lagoon area, and 2 from PAANG compound and apron area), and 27 surface scrape soil samples (11 from Main Building Area, 3 from along the pipelines, 3 in the lagoon area, and 10 from the background boring locations).

Appendix E: Please add the analytical data for soil samples collected from the 5 following shallow monitoring borings in the Industrial Area to Appendix E: [Reference Data Package for LIMS 2103: IAB-ERM-4S, IAB-ERM-5S, IAB-ERM-27S] and [Reference Data Package for LIMS 3258: IAB-ERM-34S and IAB-ERM-35S].

19. Tables 3-1 and 3-3. Tabulate the data for ERM-1S (soil boring for a shallow monitoring well in the mid-lagoon area) LAL-SB11, and LAL-SB12 (soil borings from the mid-lagoon area) together, or explain why the data should remain tabulated separate. Also add headings in the left column to identify the respective sampling areas.
20. Tables 3-2 and 3-4. Add headings in the left column to identify the respective sampling areas. Footnote the table to explain the labeling scheme for the Smith data sample names.
21. Section 3.2.1.1 pg 14/37 2nd bullet: Clarify the working in the phrase "regardless of other constituents were found in similar locations".
22. Section 3.2.1.1 pg 16/37 text tables: Add the word "Residential" to the column heading "RBC" of the two text tables at the top of the page. Add the word "Background" to the column heading "Range" of the text table at the top of the page.
23. Section 3.2.2 pgs 19/37 thru 21/37: Clarify whether MID-04 is included in the HIA Water Department water treatment/distribution system. If not, explain why MID-04 is not included in the discussion in Section 3.2.2.
24. Table 3-6. Add a footnote to define the units for the data and screening levels.
25. Table 3-7. Add "Susquehanna River Quarterly Monitoring." to the title of Table 3-7.
26. Section 4.2.1 pg 8/18: Clarify in Section 4.2.1 how the conclusions from hydrogeologic investigation (Capture Zone Tests and Groundwater Flow Modeling) conducted at the Site during the Supplement Studies Investigation assists in the development of a timetable for groundwater restoration.
27. Section 4.3.1 pg 11/18 1st full paragraph (after the bullets): Based on the information given in section 3.2.2.3, top of page 21/37, this reviewer recommends replacing the phrase "is served by the HIA water system" with the new phrase "has been served by the HIA water system since 1981 (Personal Communication with Joel Frank, May 1996)".
28. Section 4.3.1 pg 12/18 1st paragraph, 2nd sentence: Replace the phrase "data collected to date indicated" with the new phrase "data from the initial seven quarterly rounds indicates".

29. Section 4.3.1 pg 14/18 3rd sub-bullet, last sentence: Add the missing word(s) to clarify the phrase "(both isomers were detected once the sample from residential well RES-05)".
30. Section 5.1 pg 2/7 1st paragraph (after last bullet): The phrase "At the time of issue, the second ROD was intended to be a final remedy selection" appears to conflict with the following phrase taken from page 1, last paragraph, of the ESD: "thus the steps set forth in the 1990 ROD were not intended to be the final Agency position on groundwater restoration". Clarify or delete paragraph.
31. Section 5.1 pg 2/7 2nd paragraph (after last bullet): For consistency with the 1990 ROD language, this reviewer recommends the following revised paragraph be substituted for the subject paragraph: "The 1990 ROD defined the selected remedy for OUs 1, 2, 3 and 4. However, an interim remedy was proposed for OU-5 since the results of the investigation were inconclusive in determining the source(s) of contaminants and their potential impacts."
32. Section 5.1 pg 3/7 last two paragraph: A transitional paragraph is needed between the two subject paragraphs which bridges between the 1990 ROD and the FFS Report, i.e., a summary statement about the evolution the ESD and the genesis and execution of the Supplemental Studies Investigation to satisfy remaining requirements of the 1990 ROD as clarified by the ESD.
33. Section 5.2 pg 3/7 3rd paragraph, 2nd sentence: To address PADEP's concern that selected remedy in the 1990 ROD did not consider active soil cleanup technologies, this reviewer recommends that ERM's explanation for concluding SVE would be futile (based on the evaluation of the results from the Supplemental Studies Investigation and other investigations) be inserted somewhere in Volume 1 of the FFS. Then make reference to that explanation in this "Discussion of the No Action Preferred Alternative".

July 22, 1996

Project: Middletown Airfield NPL Site, Supplemental Studies Investigation

Subject: USACE-MRO comments by Jerry Trease (Project Chemist) on Draft Focused Feasibility Study Volume IV (Appendices F-L) dated 1 July 1996 prepared by ERM.

Appendix G Comments

1. ES pg 1/21 2nd paragraph: The paragraph heading that precedes the bullets on pg 1/21 is unclear.
2. Section G.1.1 pg 3/21 1st paragraph, last sentence: Clarify what site feature is referred as being just north of PA Route 230.
3. Section G.2.3 pg 6/21 4th paragraph: To clarify the parameter list for sediment samples, replace the phrase "and percent solids" at the end of the paragraph with the following new phrase "pH, and cation exchange capacity (CEC)".
4. Figure G-2: To coordinate with the sample location description for MH-1 given on Table G-2, this reviewer recommends adding the label for "Rosedale Avenue" on Figure G-2.
5. Section G.3.1.2 pg 10/21: This reviewer recommends inserting the following sentence as a separate introductory paragraph under the heading for paragraph G.3.1.2: "The surface water/sediment sample locations and the sediment sample descriptions are described in Table G-2."
6. Section G.3.1.2 pg 10/21 1st & 4th paragraphs: In the first sentence of both the 1st and 4th paragraphs, the referenced table should be G-1, not G-3. Also, since the data presented in Table G-4 is laboratory data, not field data, this reviewer recommends deleting the last sentence in the 4th paragraph.
7. Section G.2.2 pg 6/21 and Section G.3.1.3 pg 11/21: In order to avoid a disjointed text table in Section G.2.2 and in order for Tables G-3 and G-4 to match (face) the text sections that discuss the data in the respective tables, this reviewer recommends that the three-ring-binder holes be punched on the left of pages 6/21 and 11/21.
8. Section G.3.1.3 pg 11/21 2nd paragraph: Regarding the sentence "Copper and zinc were detected in the blank", ERM is requested to verify that the "B" qualifier, as used in this Meade Heights Stream Survey Report (as well as all the data in Vol. III, Appendix E of the FFS Report) for reporting inorganic results (copper and zinc in this Meade Heights report), actually correlates with those analytes being detected in the blank. This is important since the EPA CLP Program defines the "B" qualifier for inorganic data differently.
9. Section G.3.1.3 pg 11/21 bullets 6, 7, and 9: The upper range concentration for magnesium and the lower range concentrations for manganese and potassium, as given in the respective bullets, do not agree with the values given in Table G-3.

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10. Section G.3.1.3 pg 11/21 3rd paragraph: The Alkalinity values and station numbers given in the second sentence do not agree with the information given on Table G-3.
11. Section G.3.1.4 pg 12/21 1st paragraph: The word "and" appears to have been inadvertently omitted after the word "concentration" in the last sentence of the paragraph.
12. Section G.3.1.4 pg 12/21 2nd paragraph, 12th bullet: The station number given in 12 bullet for the lower range concentration for magnesium does not agree with the station number showing the lowest concentration for magnesium in Table G-4.

Appendix K Comments

Note: The following two comments have been rewritten from Notes provided with Trease Comments 28 & 27 (respectively) that were submitted on July 18, 1996 for Vol. III, Appendix D, of the Draft FFS Report documents.

13. Section K.1.3 pg 3/32 and Table K-1: Since Table K-1 identifies the shallow capture zone wells ERM-21S, -22S, -25S and -26S as bedrock wells, please verify and edit (as applicable) the accuracy of the following statement in Section K.1.3, pg 3/32, 1st paragraph: "The shallow wells were completed in the overburden with screened interval of 10 to 20 feet below ground surface (bgs)."
14. Table K-2. Clarify the well depth (602 feet BLS) and the open borehole interval (75-602 feet BLS) for HIA-13 that are given in Table K-9. For comparisons see Tables D-11 and D-12 in Volume III, Appendix D, of the Draft FFS: i.e., the depth indicated under the column heading "Meas. T.D. of Well" in Table D-11 (pg 6 of 6) is 800, and the depth depth indicated under the column heading "Total Well Depth" in Table D-12 (pg 4 of 4) is 800 ft. bmp.

7-12-96

To: Dan Gillespie

From: Gil Scholl, Geology Section B

Subject: Review Comments on Draft Feasibility Study- Vol I and II, (dated July 1, 1996 ERM)

Appendix A-B

1. Where are abandonment diagrams for the couple of wells that were abandoned. These should be included with how they were sent to the State if they were sent?
2. Well completion diagrams are not here. The ones on the logs are not consistent, that's why a form is supposed to be used.
3. ! W logs are inadequate on several parts. 1) Fluid amounts and air drilling lubricants were used during the dual wall air hammer work are not provided here which is the useful place. 2) A separate log should be provided for each well even if you had to do it. 3) The method and type of span gas used for PID calibration should be stated at the top of field screening column. 4) Temporary casing depths should be recorded on the log. They tell part of the story of the drilling effort. 5) Contacts in column c should only be drawn to illustrate lithological contacts, not sample intervals. 6) Surface elevations are to be included here, they are part of the log. Future use of the logs are hindered without this directly on the log. 7) Analytical samples that were actually sent for off-site analysis are to be noted on the logs. If 5 samples were collected but only 3 sent in it needs to be reflected which were sent right under the sample number. Look at IAB-SB14 and IAP-SB2 for starters. Off-site analysis was not done on more than 3 samples per soil boring hole in general.
4. Appendix B. Discuss the overall quality differences between Welenco sonic logs at HIA wells and the ERM sonic logs and ERM wells.

Appendix C- Map Plates

5. Plate 8- Following wells have contours on wrong side of them:ERM-34I, GF-309, GF-311(poor placement). ERM-10I.
6. Cross-section plates It appears to me that a better interpretation could be made on fractures and their possible effect on the flow regime by including the sonic logs on these cross-sections for use in interpretation.
7. Plate 8-Potential that including varying well depth(multiple depths compared) hydraulic head information may be inappropriate as observed on Plate 3 for example with wells ERM-24I and ERM-32I. It looks like the 100' intermediate wells have more consistent water levels and should be separated from the ERM 200' intermediate wells. Thus, there may need to be consideration for different zones or levels of confinement, i.e. this is a map of hydraulic heads not a potentiometric surface map.

Appendix D-Site Investigation Methods

8. Sec. D.1.2, page 4. last sentence. Because you know where they were stored, put where they were actually stored.
9. Sec. D.3, page 6. par 3. The dye study was substituted with EPA's approval. Please state

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- that.
10. Sec. D5, page 10, par 2. Second sentence says that two samples were collected per each location. Add that these were for two depth ranges.
 11. Sec. D.7.1, page 15, 1st par. Specify the diameter size of split spoon that was used, and state more than one size if such. This has an impact on the interpretation of blow count numbers recorded with one hammer weight.
 12. Sec. D11.1, page 29, par 2. Second sentence says that samples were collected using split spoon samplers. Specify the size that was used.
 13. Sec. D.11.3, page 32. Reference the screen slot sizes, filter pack sizes/brand. Also, a grain size curve of the filter pack and grain size curves of the geotech samples need to be presented somewhere in the report, not just tables.
 14. Sec. D.12.2, page 36. State the purpose of this sampling.
 15. Sec. D.12.2, page 37. Last paragraph is somewhat incorrect. Do not think exact same zones were sampled in all cases.
 16. Where is the discussion of the database that was built and its properties?

Appendix K- Capture Zone Tests and Analysis

17. Exec. Sum., page 2. Top paragraph should briefly discuss sensitivities on annual infiltration.
18. Sec. K.2.1, page 4, last of 2nd par. The last 2 sentences of paragraph has numbers that do not correlate with each other. 1.1 mil gallons is ~ 764 gpm.
19. Fig. K-12. Difficult to differentiate between all of the symbols. Either need pointers with label or something done with symbols, especially the lower ones in graph.
20. Fig. K-14. The influence in the middle section of graph for well 23D looks like dual porosity, or is there some other nearby well influences that causes this. If it is dual porosity, you should be analyzing with more appropriate methods.
21. Please provide the straight lines on the semi-log graphs that you used for calculations. The information needs to be there to make judgement from, and is inadequate for us. These analyses presentations should be of the quality you put into the slug test analyses.
22. Sec. K.4.2.3, page 17, 1st par. Drawdown is not a word as far as I know.
23. Sec. K.4.2.6, page 21, last par. Please add some of the other thoughts that were relayed to USACE about not seeing the effects of anisotropic orientation of capture. The effects of vertical heterogeneity and long open hole production well completion effects were two of the ones I remember. These also can be referenced from the multiple flow entry points shown by the spinner logs by Welenco.

Appendix L- Groundwater Flow Modeling

24. Sec. L.2, page 2, bullet 2. This objective also should say to capture ground water coming/ migrating from the North Base Landfill.
25. Sec. L.6, page 10, #5. This conclusion contradicts section K.6.1 under conclusions and recommendations. That section says that complications of the test made it difficult to determine if there was anisotropy but there was at least some indication of limited anisotropy. Since you were looking on a large scale area the conclusions are important.

To: Dan Gillespie
From: Deni Hitzfeld
Re: Review Comments Regarding the Draft Focused Feasibility Study-
Volume I - Report for Middletown AF, PA
Date: 12 July 1996

1. Acronyms and Abbreviations, pg 1 of 5.
Replace BTE with BTEX.

DCE is typically the acronym for dichloroethene and TDE is the common acronym for 1,1-dichloro-2,2-bis(p-chlorophenyl)ethane also known as tetrachlorodiphenylethane. Correct this please.

2. Acronyms and Abbreviations, pg 3 of 5.
The MRD Laboratory is now known as the Missouri River (MR) Laboratory since it is now part of the Omaha District.
3. Executive Summary, pg. 5 of 7.
Correct the grammar error in the bullet on this page (ie. the "is" before "being").
4. Section 2.0, pg. 1 of 19.
Add an "s" to the end of the word "detail".
5. Section 2.2, pg. 2 of 19.
Insert information into this section about the use of building 135.
6. Section 2.5, pg. 19 of 19.
See comment #2.
7. Section 3.1, pg. 2 of 37.
Reference section 2.2 regarding the use of 135 as the reasoning for the radiological survey.
8. Section 3.1.1.2, pg. 4 of 37.
Insert 1,2 DCE on the acronym page. See Comment #1.
9. Section 3-I.4.1, pg. 6 of 37.
For the bullets in this section, insert whether upstream and downstream concentrations of contaminants were similar.
10. Section 3.1.5.1, pg. 8 of 37.
In the first sentence of this section, insert the words "from the Meade Heights Stream" after the word "collected".
11. Section 3.2.1.1, pg. 15 of 37.

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Include the mentioned soil data for the Meade Heights Area in section 3.1.5.

Correct the last sentence on this page to reflect that the comparison is presented on the following page.

12. Section 3.2.1.2, pg. 17 of 37.

Correct the leaching screening level for TCE to 0.20 mg/kg.

13. Section 3.2.2.3, pg. 20 of 37.

The third sentence of this section is incorrect since RES-03 is equal to 1. Correct it to read that "RES-06 is the only well with a hazard index greater than one."

14. Section 3.2.2.3, pg. 21 of 37.

Do we know if the Oddfellows Home well is going to be abandoned or does the potential exist for the well to be used again.

15. Section 3.4.1, pg. 34 of 37.

Change the last sentence of the second bullet to reflect that no adverse health effects are anticipated with the defined conditions of exposure when the hazard index is equal to or less than 1.

15. Section 4.1.1.2, pg. 3 of 18.

Correct the leaching screening level for TCE. See comment #12.

16. Section 4.2.2, pg. 9 of 18.

Insert the word "in" after "found" in the fourth sentence.

17. Section 4.2.3, pg. 10 of 18.

Include more information about RES-02. Such as is it currently being used as a drinking water source and is that location currently served by the Harrisburg International Airport water system?

18. Section 4.2.3, pg. 12 of 18.

Why were the detected concentrations of lead compared to the action level rather than the MCL?

19. Section 5.2, pg. 4 of 7.

In the first complete sentence on this page, delete the "s" from the end of the word "cease".

Comments on the Focused Feasibility Study, Supplemental Studies Investigation
Middletown Airfield Site, ERM for Omaha District, USACE, 7/96
by Dave Becker, USACE HTRW CX (CEMRO-HX-G, 402-697-2655), 7/12/96

1. General. I have briefly reviewed the report and have concentrated on Volume 1 and Appendices K and L. My review was meant to complement the review by Omaha District Project Geologist. I generally concur with the conclusions and recommended action of the report.
2. Report, Sec. 3, p. 7. Top line: well should be ERM-9S(Sent).
3. Report, Sec. 3, p.18. 1st bullet: Suggest you note TOC values at the site to support the discussion here.
4. Report, Sec. 4, p. 9. Given the carbon tet hit at ERM-9S, would a recommendation be to either resample the well to confirm its occurrence or install another well nearer the MID-4 well?
5. Report, Sec. 5, p. 5. Again, suggest evaluation of the potential off-site source. This should definitely not be done by DOD if it is unlikely that it is a result of Air Force operations.
6. Report, Sec. 5, p. 5. Recommend that, if additional concerns about off-site impacts are raised, an evaluation of the natural attenuation of the chlorinated organics may be desirable.
7. App K, General. I am concerned about the limited means to evaluate the pump test results. I would recommend, if the Omaha District geologist concurs, that techniques for analysis of data from pump tests in fractured rock be employed. Some references include Gringarten, 1984 (Journal of Petroleum Technology, April, 1984, pp. 275-290) and references cited there and Sen, 1988 (Water Resources Research, Vol. 24, No. 4, pp. 601-606). I am concerned that the techniques of analysis do not provide a good basis for the T values used in the modeling.
8. App K, p. 9. I do not see the correlation between the barometric pressure and the response of ERM 13I or 14I. It looks like a nearby production effect.
9. App K, p. 14. Please provide a citation for the claim that the result of a Jacob method analysis is not affected by anisotropy.
10. App K, p. 17. References in K4.2.2 to ERM-25D should be to ERM-25I, etc.
11. App K, p. 18. Note that the HIA-9 well still had 85' of drawdown (is it an inefficient well?) And discuss the possibility that the drawdown is affected by the river as a recharge boundary.
12. App K, p. 19. Discuss what method the USGS used to analyze their pump test data. I am concerned by the significant differences in results.
13. App K, p. 27. A number of these simulations show a distinct connection to the river for wells in the central and eastern part of the site which is not observed in the observations from the

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site. Suggest this be discussed in evaluating the usefulness of these simulations.

14. App K, sec K.5.6.4, p. 29. According to the figures, much if the NBL-vicinity water is projected to go south to HIA-13 - not to MID-4. This also applies to conclusion on p. 31.

15. App K. I could not find data for pumping tests for HIA-13 or MID-4. These must be provided.

16. App L, General. This appears to be a pretty good approach to a difficult problem. I have concerns about two assumptions: First, I disagree that the hydraulic conductivity can be assumed to be uniform vertically in the bedrock. The pump tests showed drastic differences in response with depth. I realize that you have insufficient data to evaluate this over the large area modeled, however, it may be worthwhile to adjust T accordingly near areas of pump tests, such as MID-4, (near the large residuals). The other is the assumption of uniform recharge. I would have evaluated the recharge based on topographic slope. Is it possible that recharge is higher near the Fruehauf facility because it is flatter or that there are leaky storm sewers there?

17. App L, p. 17. One way to set a calibration target is to look at the magnitude of seasonal fluctuations. The targets should be at least that large. (Is it possible that the seasonal fluctuations are a partial cause of mismatches in some areas? - this is hinted at later when discussing the drought conditions, but should be suggested more directly).

18. App L, sec L10.1, p 21. The similar capture zones are to be somewhat expected given the assumption of uniform k. Note that the similar capture zones were not observed in practice.

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